NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF MARINE SAFETY
WASHINGTON, D.C. 20594

K-LINE ENERGY SHIP MANAGEMENT
ERRATA

IIC's Factual Report

***Genesis River* / *Voyager* Tow**
DCA19FM033

Page/Line	Original	Original text(black font) **Proposed Revision(red font)** **Comment(blue font)**	NTSB Disposition of Party Comment
Page 2 Lines 9-10	Uchisaiwaicho 2-Chrome Chiyoda-Ki	Uchisaiwaicho 2-Chome Chiyoda-Ku	Accepted. Change made to text.
Page 4 Lines 3-4	Genesis river collided a 297 foot long tank barge being pushed ahead by the 69 foot long towing vessel Voyager.	Genesis river collided with the starboard side of one of the two 297 foot long tank barges breasted together and being pushed ahead by the 69 foot long towing vessel Voyager.	Edited as an alternative to recommended changed. Taken together with the follow-on sentence and figure 1, the text as currently written accurately describes the general circumstances being described in this opening paragraph. However, to better draw the reader's attention to the image in figure 1, it has been referenced in the text. Revised text is as follows: "On Friday, May 10, 2019, at 1516 local time, the 754-foot-long liquified gas carrier *Genesis River* collided with a 297-foot-long tank barge being pushed ahead by the 69-foot-long towing vessel *Voyager* (figure 1). The collision breached two cargo tanks in the barge, spilling petrochemical cargo into the waterway, and caused a second barge in the *Voyager* tow to capsize."
Page 4 Line 13	A plume of water spray or smoke	Comment: We disagree with the reference to smoke. Our view is that it could only be water	Accepted. Change made to text.

		spray because there is no evidence or reason to believe it was smoke. Proposed Revision: ~~or smoke~~	
Page 4 Line 18	As it entered the bend, the Genesis	As it entered the bend at Bayport Flare, the Genesis River…	Not accepted. The bend was not at the Bayport Flare, but just south of it. Also, the bend is described in the preceding sentence, so a description of its location is not necessary.
Page 4 Line 19	River's heading swung to port, and, although the pilot	Comment: The statement is not clear as why the heading swung to port. We believe that the GR heading started to swing to port because port helm was given by pilot for adjusting vessel heading for next course, but the vessel's swing to port kept increasing even though counter helm was provided. Proposed Revision: While the GR was at the starboard limit of the channel approaching the bend at Bayport Flare, her heading rotated to port in an attempt to return to the centerline heading for the next course, but the vessel's rotation to port continued even though counter-helm was provided.	Not accepted. The reason (or reasons) for the swing to port are the subject of analysis and not appropriate for this factual report. Also, this section is a basic overview of the accident. Detailed information about the accident sequence, such as the pilot's various orders before and after the turn, is covered in section 3.
Page 5 Line 18 to Page 6 Line 1	The force of the collision with the starboard barge capsized the port barge in the tow, and the Voyager nearly capsized before its tow lines broke free and the vessel righted itself.	Proposed Revision: The force of the collision with the starboard barge capsized the port barge in the tow, and the Voyager heeled considerably before its tow lines broke free and the vessel righted itself.	Accepted. Change made to text.
Page 6 Lines 11-12	The Genesis River was a Panama-flagged liquified gas carrier owned by FPG Shipholding Panama 47 S.A. and operated by K-Line Energy Ship Management Co., Ltd.	Proposed Revision: The Genesis River was a Panama-flagged liquified gas carrier owned by FPG Shipholding Panama 47 S.A and managed and operated by K-Line Energy Ship Management Co., Ltd.	Accepted. Change made to text.
Page 13 Line 14	Alarms "on the radar"	Comment: We request to strike out "on the radar" as Pilot had asked to turn off all alarms as verified on the VDR recording. Proposed Revision: ~~"on the radar"~~	Not accepted. Multiple auditions of the VDR verified that the pilot stated, "on the radar." This is reflected in the VDR transcript prepared with the assistance of party members. See page 5 of NTSB VDR transcript.

			(Note: the text in the report has been edited to reflect that the pilot said "radar" [singular] vice "radars" [plural].)
Page 14 Line 4	The helmsman repeated the order, turned the wheel to the ordered angle, and then repeated the order when the rudder reached the desired angle, as was his normal practice.	Comment: We request that the reference to "his" normal practice be deleted unless the intention is to make a reference to an industry-wide practice. Proposed Revision: The helmsman repeated the order, turned the wheel to the ordered angle, and then repeated the order when the rudder reached the desired angle. ~~as was his normal practice.~~	Accepted. Change made to text.
Page 14 Line 5	The rudder on a ship is a large surface	Comment: The reference to a "large surface" is not clear. Proposed Revision: delete: ~~"a large surface"~~ Also, we propose the following addition: "By all accounts and technical data the GR had a fast rudder requiring only seven seconds to move from midship to either hard port or hard starboard."	1) Regarding the reference to "large surface," the text has been edited to clarify its meaning. Revised text is as follows: "Because the rudder on a ship has a large surface area and must be moved through the water by hydraulic machinery, the movement of the rudder will lag behind the rudder input—the ship's wheel—with the lag time dependent on the amount of change in the rudder position." 2) Regarding the proposed addition, the report has been edited as an alternative to the recommended text. The following text has been added to section 2.2.1 (*Genesis River* description): "The pilot card—a three-page summary of the ship's particulars, engine speeds, and steering and navigation equipment—noted that the time for the rudder to move from hard-over to hard over (35° to 30°) was 24 seconds with one steering pump on line and 13 seconds with two steering pumps online, which was within the Coast Guard mandated swing rate.[3]" The footnote text is as follows: "[3] Per Title 46 *Code of Federal Regulations* subpart 58.25-10, an inspected vessel's steering machinery must be capable of moving the rudder from 35° on either side to 35° on the other with the vessel at its deepest loadline draft and running at maximum ahead service speed, and from 35° on either side to 30° on the

			other in not more than 28 seconds under the same conditions."
Page 14 Lines 9-11	Pilot 1 stated that he preferred this format to reduce noise distraction, and he verified the position of the rudder after issuing an order by sighting the rudder angle indicator, an instrument visible from any position on the bridge that displays both the position of the wheel(the rudder input) and the actual position of the rudder.	Comment: This statement is incorrect as the rudder indicator does not display the rudder input, but only the actual position of the rudder. Rudder input can only be verified from the steering stand from where the helmsman steers. Proposed Revision: "he verified the position of the rudder after issuing an order by sighting the rudder angle indicator, an instrument visible from any position on the bridge that displays the actual position of the rudder.	Accepted, with editorial change. Revised text as follows: "…he verified the position of the rudder after issuing an order by sighting the rudder angle indicator, an instrument visible from any location on the bridge that displays the position of the rudder."
Page 15 Lines 28-29	After pilot 2 issued the order, pilot 1 informed him that the Genesis River handled poorly.	Comment: We request that this sentence should be deleted as a whole. The comment about the "poor handling" was not recorded on the VDR, and it was only Pilot 1 statement after the incident.	Accepted. However, text has been added to reflect specific comments recorded by the VDR. Text is as follows: "After pilot 2 issued the order, he asked pilot 1, 'Y'all over the place?' Pilot 1 responded, 'Yup,' and added, 'She's takin' lotsa wheel…typical Japanese ship; got a little bitty rudder on her.'
Page 16 Lines 16-17	Ordinary seaman (OS) who was training to become a helmsman	Comment: We note that OS was also qualified helmsman and he holds certificate for that. The statement as written is creating confusion between skill & qualification. Proposed revision: About the same time, an Ordinary seaman (OS) who was also a certified helmsman requested permission …	Partially accepted. The NTSB acknowledges that the OS held an AB certificate, and as such was qualified to stand a helmsman watch. However, it needs to be clear that the OS was not a regularly assigned helmsman, and he took the helm for the purpose of training—as noted by the OS and the master in their interviews. Text in this paragraph has been revised as follows: "About the same time, an ordinary seaman (OS) requested permission from the *Genesis River* second officer to take the helm under the observation of the able-bodied seaman (AB) assigned to the helmsman watch. The OS told investigators that he was training for promotion to an AB position with the company (the OS held an AB certificate). The second officer gave permission, and the OS took the helm. In a deposition taken in October 2019, the AB stated that he requested permission from pilot 2 to turn over the helm to the OS. However, pilot

			2 told investigators that he was not informed that the OS was at the wheel, and the VDR did not capture audio of the AB or any other crewmember requesting permission to change helmsmen. The AB stated that he stood next to the OS while he was at the helm and verified that rudder orders were properly executed. Additionally, text in section 5.1.2 (page 28 lines 13-14) has been revised as follows: "The ordinary seaman (OS) that took the helm prior to the accident held valid certificates for Ratings Forming Part of the Navigation Watch and Able Seafarer Deck issued by the Government of the Republic of the Philippines. As such, he was qualified by international standards to stand a helmsman watch."
Page 16 Lines 30-31	Investigators spoke with several Houston Pilots, and each stated that they believe that the location was a safe area to pass.	Comment: We would request that this sentence should be deleted as a whole. [The "*several Houston Pilots*", who are not specified, did *not* attend the NTSB investigation *nor* testify there. That said, *no one* could confirm any reliability of such their statements by way of the cross-examination. Whether or not the location was a safe area to pass would be determined by or depend on various factors, *such as* (i) size of both meeting vessels, (ii) the relative position to the channel's centerline of two vessels meeting at bend of the Bayport Flare, (iii) the then depth of the location (Please see comparative survey in the Figure 7 and Figure 8 in the draft NTSB report), (iv) the distance between the two vessels at the time of the meeting, (v) Speed of the two vessels at the meeting point.	Edited as an alternative to recommended change. This sentence was based on responses to NTSB/Coast Guard interviews following the accident as well as testimony at the Coast Guard formal hearing into this accident. In both cases, K-Line representation was present and permitted to ask questions of the witnesses. However, to more accurately describe the witnesses' statements, the sentence has been revised as follows: "Investigators spoke with other Houston Pilots, and each stated that they felt comfortable passing in that location or that it was a safe area to pass."
Page 17 Line 4	At 1511:12, pilot 1 on the Genesis River ordered course 164 (1 degree to port).	At 1511:12, pilot 2 on the Genesis River ordered course 164 (1 degree to port).	Accepted. Change made to text.

Page 17 Line 1~3	As the BW Oak entered the turn at Five Mile Cut from the south, the pilot onboard the vessel altered course early – at 1510:23 – so that the ship would be on the starboard side of the channel when it entered the flare and met the Genesis River.	Comment: We respectfully disagree with this representation, but we also realize that the NTSB maybe did not have the benefit of the BW OAK ECDIS or BW OAK Pilot PPU (please see attachments). As the two vessels were approaching each other, the BW OAK was lined up on the "wrong" side of the channel (green side) and completely to the left of the centerline. The effect of the above-mentioned positions of the two vessels had a significant impact on the meeting of the two vessels, which in our view has not been appropriately described or taken into account in the draft report. We believe that this is a very significant factual aspect of the NTSB investigation and should be taken into account. It also evidences that the meeting between the two vessels was not "textbook" as the pilots have testified to date. We have also noted that the widener section at the turn is not shown on the chart included in the report. Proposed Revision: 1) By being on the green side of the channel, the BW OAK forced the GENESIS RIVER to the extreme edge (starboard side) of the channel and caused the GENESIS RIVER to begin her turn to port later than would be customary. 2) Additionally, the BW OAK, by approaching the turn from the green side of the channel, was positioned closer to the centerline than the laden GENESIS RIVER as they met, instead of being positioned closer to the outer limit of the channel, which lies on her starboard side, as required by Rule 9 of the Inland Rules of the Road. In addition, the BW OAK chose not to utilize the additional	Partially accepted. The *BW Oak*'s track is accurately portrayed in the chartlet in Figure 9; however, the NTSB acknowledges that this chartlet and others used in the report do not show the widener on the eastern side of the channel at the turn at Five Mile Cut. Chartlets used in the report have been updated to show the widener. Further, the NTSB acknowledges that text stating that the *BW Oak* "altered course early" is based on an interview response by the pilot and not a factual determination. Accordingly, the text has been revised as follows: "As the *BW Oak* entered the turn at Five Mile Cut from the south, the pilot on board the vessel altered course at 1510:23. The *BW Oak* pilot told investigators that he ordered the turn earlier than he normally would have so that the ship would be on the starboard side of the channel when it met the *Genesis River*." Further discussion of the impact of the vessel positions to the outcome of the accident is the subject of analysis and not appropriate for this factual report.

		space afforded by the widener near beacon 76 thereby preventing the GR from maintaining a position closer to the centerline of the channel and also reducing the distance or space between the vessels as they met, which increased the hydrodynamic forces impacting the two vessels.	
Page 19 Line 11	He was concerned that hitting the bulkhead with the barges would stop the tow and leave his vessel stranded in the path of the ship bearing down on him.	Comments: In fairness and also because it is a part of the NTSB official records, we would strongly recommend the addition of the following sentence after the sentence ending on line 11. Proposed Revision: Contrary to the relief captain's testimony, Capt. Bourg, who was operating the tow PROVIDER with 2 barges strung out inbound in the barge lane immediately astern of the VOYAGER, determined his safest course of action would have been to slow down, steer toward the edge of the barge lane on the starboard side, then proceed outside the barge channel if it became necessary. He further stated that he was not concerned about the submerged bulkhead because it was 400-500 feet beyond the edge of the barge lane (p. 135 of NTSB transcript of 9/17/19 hearing). He also stated in response to a question by Mr. Rice that "No sir. I personally never considered going to the greens." (p. 139).	Not accepted. At the time that the *Voyager* relief captain had to make a decision, the *Provider* was over 3/4 mile behind the *Voyager*. From this position, the *Provider* captain did not have the same perspective as the *Voyager* relief captain to both the *Genesis River* and navigational hazards. He was also not familiar with the make-up, drafts, and contents of the *Voyager* tow. Further, the charted location of the submerged bulkhead is well within 400-500 feet of the barge lane. While the NTSB appreciates Capt. Bourg's towing vessel and waterway experience, his statements in this instance carry limited weight and are not necessary for this report.
Page 19 Lines 13-16	He stated that the pilot's direction over the radio to do so only confirmed what he had already determined was the best action, so he immediately increased the *Voyager's* engine throttles back to full power and put the vessel's rudders over hard to port.	Comment: We would suggest the following addition after the sentence ending on line 16 which is also consistent with Capt. Charpentier's testimony that the VOYAGER was slow to cross the channel. Proposed Revision: After making the turn to port, the screenshots from the VOYAGER's Rosepoint show that the tow's speed reduced to 4.1 miles per hour from the approximate 6 miles per hour she had been previously making during her inbound transit.	Not accepted. The information in the first part of the proposed revision is covered on page 20, line 7. The *Voyager*'s courses and speeds are also provided in Figures 10 and 11. The second part of the proposed revision, specifically discussion of "effective speed," is analysis not appropriate for this factual report.

		Also, by crossing the channel at a 45 degree angle, the VOYAGER's effective speed across the channel from the reds to the greens was less than 2.5 miles per hour. As a result, at the time of the collision, only the forward half of the VOYAGER's barges had in fact crossed the centerline.	
Page 20 Line 1	About 15.36:46 the Voyager captain…	Comment: We believe this is a typo and should be corrected. Proposed Revision: "Shortly before the collision" instead of "About 15.36:46"	Partially accepted. This was a typo and the time has been corrected to "About 1513:46."
Page 20 Line 6	The captain remained in the wheelhouse to assist captain	Comment: In order to clarify the reference to two captains in the same sentence, please see Proposed Revision. Proposed Revision: The Captain remained in the wheelhouse to assist the relief Captain who was operating the VOYAGER.	Partially accepted. The sentence has been revised as follows: "The captain remained in the wheelhouse to assist the relief captain."
Page 22 Lines 20-22	He further state that that, from his position on the bridge wing, his view was outside the line of beacons marking the outer edge of the barge lane.	Comment: The observation of pilot 1 is completely unsupported and contrary to the evidence provided by Capt. Charpentier's PPU, Capt. Barton's PPU, and the Rosepoint display of the VOYAGER. We suggest this statement should be deleted. In the alternative, if the statement is not deleted, we believe that an additional statement should be made to reflect actual evidence of the official record. Proposed Revision: This observation of pilot 1 is completely unsupported and contrary to the evidence provided by Capt. Charpentier's PPU, Capt. Barton's PPU, and the Rosepoint display of the VOYAGER.	Accepted. This text has been deleted.
Page 23 Line 11-13	At 1516:09, the Genesis River's bow struck barge 30015T, breaching the number 2 cargo hold on the starboard side near the center of the vessel and continuing	Comment: The reference to the number "3" cargo hold should be corrected to number "2" cargo hold. Proposed Revision: the hull into the number ~~3~~ 2 cargo hold on the port side.	Accepted. Change made to text.

	through the hull into the number 3 cargo hold on the port side.		
Page 24 Line 31-32	"…He wasn't doing the proper orders given."	Comment: Pilots review of evidence did not consider the time delay in the VDR recording explained later and which led him to comment thus. In fact, it was noted from the VDR recording that the steering commands were correctly followed.) We would respectfully request that this point should be emphasized immediately after the reference to the Pilot's quoted comment in the report. Proposed Revision: The Pilot's review of the VDR did not consider the NTSB's reconciliation of the 9.4 second "delay". This comment is the Pilot's opinion, but the opinion is contrary to the NTSB analysis.	Not accepted. Statements made by participants in an accident may be stated in the factual report, but analysis of the validity of those statements is not appropriate for this report.
Page 24 Line 36-37	….."I did not get the rpms…that I asked for."	Proposed Revision: At the time the vessel was already at a Nav Full speed rpm and increasing beyond this rpm was not a normal operation. The OOW is required to contact the Engine room and request the same.	Edited as an alternative to proposed revision. The operation of the engine control system at Nav Full is discussed at length in section 5.5.1., and text has been added at the end of the paragraph in this section (Page 33, line 32) as follows: "Thus, when the engine was operating at the speed limit and increased rpm was required, bridge watchstanders had to call the ECR to request an increase to the limit."
Page 27 Line 9	The master of Genesis River was in his cabin until just prior to the accident	Comment: This statement is incorrect. Master was in his cabin between 1345 to until just prior accident. Proposed Revision: The master of the Genesis River was in his cabin from 1345 to just prior to the accident.	Accepted. Change made to text.
Page 28 Lines 5-11	When a trainee was allowed to take the helm	Comment: Reference to trainee is not completely accurate under the circumstances. We suggest that "trainee" should be replaced with "OS." Also there should be an addition that the OS has an A/B certificate.	Partially accepted. "Trainee" has been replaced with "OS" as recommended. Recommended text of ", who was a certified helmsman," has not been added. However, in the following paragraph, text has been revised to reflect the OS's qualifications as follows: "The ordinary seaman (OS) that took the helm prior to the accident held valid

		Proposed Revision: When an OS, who was a certified helmsman, was allowed to take the helm	certificates for Ratings Forming Part of the Navigation Watch and Able Seafarer Deck issued by the Government of the Republic of the Philippines. As such, he was qualified by international standards to stand a helmsman watch.”